

UNCLASSIFIED

AD NUMBER
AD001985
NEW LIMITATION CHANGE
TO Approved for public release, distribution unlimited
FROM Distribution: No Foreign.
AUTHORITY
ONR ltr., 26 Oct 1977

THIS PAGE IS UNCLASSIFIED

Reproduced by

Armed Forces Technical Information Agency
DOCUMENT SERVICE CENTER

WOTTS BUILDING, DAYTON, 2, OHIO

AD -

1985

UNCLASSIFIED

LOW PRESSURE RESEARCH
College Avenue Pool

August 6, 1952

ASTIA FILE COPY

AD No. 1985

Director
Office of Naval Research
Branch Office
1000 Geary Street
San Francisco 9, California

MONTHLY STATUS REPORT - JULY 1952

Contract N7-onr-295-Task 3
Project Number NR 461-003

Dear Sir:

Progress on the contract for the month of July has been as follows:

1. Minor modifications of the molecular beam instrumentation has permitted a recognition of a stronger signal with reduced background noise level. Following these modifications a reflected molecular beam was scanned over a range of incident and reflected angles. The received signal indicates diffuse reflection as anticipated, the reflecting surface being a glass plate. Further reflection tests will be made following a short delay due to vacation schedules.
2. Modifications of the semiadjustable diffuser have been completed. This program is awaiting tunnel time to permit final evaluation tests.
3. The report describing the design and evaluation of the No. 8 nozzle ($M = 4.0$ ideal) has been prepared and edited. The report will be forwarded shortly.
4. During the month of July the No. 3 Wind Tunnel has been used for a series of tests to determine the base pressure of cone-cylinder models in supersonic low density flow. This investigation will be continued during August.
5. The following report was issued in July:

NE-150-100: "Drag on a Rotating Cylinder at Low Pressures" by Shih-Fei Chiang.

Abstract: A theoretical expression of drag coefficient is derived by the 13-moment method and compared with the equations of drag coefficient developed (Millikan and Shenberg). An experimental investigation over a Mach range from 0.24 to 0.55 ($0.6119 < M/Re < 2.61$) shows that the rotor aerodynamic drag is proportional to the speed of rotation and that the reduction of drag at low pressures is independent of Mach number. The critical Reynolds number was determined experimentally and found to be

approximately 75 higher than the theoretical predicted value. No effect of compressibility or slip on the critical Reynolds number has been observed.

6. Visitors: The following persons visited the project during the month:

Dr. E. Eckert	- Wright Field, Flight Research Lab.
Dr. T.M. Froehlich	- Applied Phys. Lab., Johns Hopkins Univ., Silver Spring, Maryland.
G. W. Evans	- Argonne Lab., Chicago, Ill.
G. W. Patterson	- Institute of Aerophysics, Univ. of Toronto.
Dr. G. E. Morikawa	- ONR, Washington, D. C.
Maj. Claude Wilson	- AEDC, Tullahoma, Tenn.
Maj. D.A. Eiland	- AEDC, Tullahoma, Tenn.
J. M. Kendall	- Naval Ordnance Lab., White Oak, Silver Spring, Maryland.
Dr. Norton Alperin	- Western Reg. Office, ONR, Pasadena, Calif.
Dr. Wallace Hayes	- ONR, London, England
Maj. John C. Baker	- ONR, Baltimore, Maryland
Capt. John H. Smith	- ONR, Baltimore, Maryland
Capt. George Yale	- ONR, Pasadena, Calif.
Olen Goodwin	- NASA, Moffett Field, Calif.
John Dineff	- NASA, Moffett Field, Calif.
Capt. F. J. Ross	- Flight Research Lab., Wright Air Development Command.
M. S. Higgins	- Trinity College, Cambridge, England
G. S. Folders	- M.I.T., Cambridge, Mass.
Erich E. Seehngen	- Wright Field, Dayton, Ohio

Very truly yours,

S. A. Schaaf

S. A. Schaaf,
Facility Investigator

SAS/bp

cc - ONR S.F. (1), ONR WASH. (3)

Fluid Mechanics Branch,
Office of Scientific Research
Research & Development Command,
P. O. Box 1393, Baltimore, Maryland (2)

Dr. Norton Alperin, Western
Regional Office, Hdqts. ARDC,
P. O. Box 2035, Pasadena,
Calif. (1)

Reproduced by

Armed Services Technical Information Agency DOCUMENT SERVICE CENTER

KNOTT BUILDING, DAYTON, 2, OHIO

AD -

1985

UNCLASSIFIED